

(3) Any modification, alteration, or new installation of a fixed gas fire extinguishing system must meet the additional requirements of subpart D of this part.

**§ 28.830 Fire detection system.**

(a) Each accommodation space must be equipped with an independent modular smoke detector or a smoke actuated fire detecting unit installed in accordance with § 76.33 of this chapter.

(b) An independent modular smoke detector must meet UL 217 and be listed as a "Single Station Smoke Detector—Also Suitable for Use in Recreational Vehicles".

**§ 28.835 Fuel systems.**

(a) Portable fuel systems including portable tanks and related fuel lines and accessories are prohibited except where used for outboard engines or portable bilge/fire pumps.

(b) Each integral fuel tank must be fitted with a vent pipe connected to the highest point of the tank terminating in a 180 degree (3.14 radians) bend on a weather deck and be fitted with a flame screen.

(c) Test cocks must not be fitted to fuel oil tanks.

(d) Valves for removing water or impurities from diesel fuel oil systems are permitted in the machinery space provided they are away from any potential sources of ignition. Such valves shall be fitted with caps or plugs to prevent leakage.

(e) Oil piping drains, strainers and other equipment subject to normal oil leakage must be fitted with drip pans or other means to prevent oil draining into the bilge.

(f) All nonmetallic filters and strainers must be fitted with a metal shield attached to their base in such a way as to prevent direct flame impingement in the case of a fire.

(g) Shutoff valves shall be installed in the fuel supply piping lines, one as close to each tank as practicable, and one as close to each fuel pump as practicable. Valves shall be accessible at all times.

(h) Fuel oil piping subject to internal head pressure from diesel oil in a tank must be fitted with a positive shutoff valve, installed to close against the

flow at the tank. This valve is to be capable of remote actuation from outside the space in which the tank/piping is located, accessible at all times, and suitably marked.

(i) With the exception of paragraph (j) and (k) of this section, fuel piping shall be steel pipe, annealed seamless copper, brass, nickel copper, or copper nickel alloy tubing having a minimum wall thickness of 0.9 millimeters (0.035 inches).

(j) Flexible connections of a short length (no more than 762mm, (30 inches)), suitable metallic or non-metallic flexible tubing or hose is permitted in the fuel supply line at or near the engine to prevent damage by vibration. If nonmetallic flexible hose is used it must:

(1) Not exceed the minimum length needed to allow for vibration;

(2) Be visible, easily accessible, and must not penetrate a watertight bulkhead;

(3) Be fabricated with an inner tube and outer-covering of synthetic rubber or other suitable material reinforced with wire braid;

(4) Be fitted with suitable, corrosion resistant, compression fittings; and

(5) Be installed with two hose clamps at each end of the hose, if designed for use with clamps. Clamps must not rely on spring tension and must be installed beyond the bead or flare or over the serrations of the mating spud, pipe, or hose fitting.

(k) Supply piping that conveys fuel oil or lubricating oil to equipment and is in close proximity of equipment or lines having an open flame or having parts operating above 260° C (500° F) must be of seamless steel.

(l) Existing fuel oil piping may remain in service as long as it is serviceable to the satisfaction of the Coast Guard Representative. Any replacement, alterations, modifications or new installations to the fuel oil piping system must be made in accordance with the material requirements of this section.

**§ 28.840 Means for stopping pumps, ventilation, and machinery.**

All electrically driven fuel oil transfer pumps, fuel oil unit and service pumps, and ventilation fans shall be